INSTRUCTION BOOK

MODEL 1170

D. C. SUPPLY

FREED TRANSFORMER CO. INC.

INSTRUMENT DIVISION

INSTRUCTION MANUAL

FREED TRANSFORMER CO., INC.

1718 WEIRFIELD ST., BROOKLYN (RIDGEWOOD) 27, N. Y.

INSTRUCTION BOOK

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D. C. SUPPLY

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INSTRUMENT DIVISION

FREED # 1170 D.C. SUPPLY

USES:

The Type 1170 Power Supply is intended to be used as a dependable source of direct current for the Incremental Inductance Bridge Type #1110. The supply can also be used as a general laboratory substitute for a high voltage storage battery.

DESCRIPTION:

The Type 1170 D.C. supply consists of an electronically regulated high voltage supply. Four independent control circuits provide four current ranges, namely 5 milliamperes, 25 milliamperes, 100 milliamperes and 500 milliamperes. The output current is indicated by a multirange 4" meter.

FEATURES:

Separate controls for continuous variation of current are provided for the four different ranges. Extremely low hum and a constant output voltage independent of line and load variations, and an extremely low internal resistance makes it possible to use the regulated supply instead of a storage battery. All controls are accessible from the front panel. The four current ranges of the meter are independently fused.

SPECIFICATIONS:

Current Ranges
Four current ranges - 0-5 MA, 0-25 MA, 100 MA and 500 milliamperes.

Voltage Ranges
The maximum no load voltages corresponding to the four current ranges are the following: 500 MA - 270 volts, 100 MA - 270 volts, 25 MA - 55 volts, 5 MA - 25 volts. On both 500 MA and 100 MA range with the control set to zero, the output voltage is independent of the load.

Voltage Regulation
The unit operates from a 115 volts, 50-60 cycle line. For a line variation of plus or minus 10%, the output voltage shall not vary more than $\pm$ 1 1/2%.

Power Consumption
Under 500 MA full load the power consumption is 360 watts. Under no load conditions the consumption is 150 watts.

Hum Level
On the 270 volt, 500 Milliampere range the hum level under full load condition is 6 millivolts which corresponds to - 92 Db.
The instrument uses and is supplied with the following tubes and accessories:

3 - 5V4 tubes, 3 - 6AS7 tubes
1 - 0A2 tube 1 - (6-8) volt pilot lamp
1 - .8 Amp fuse, 1 - .2 amp fuse, 1 - 1/16 amp fuse
and 1 - .01 amp fuse

Mounting
The instrument is supplied for mounting on a 19 inch relay rack or for cabinet mounting.

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THE INSTRUMENT OPERATES FROM A 105-125 VOLT 50-60 CYCLE AC SOURCE

POWER CONSUMPTION
AT FULL LOAD - 500 MA. - 360 WATTS
AT NO LOAD D. C. "OFF" - 150 WATTS

PLACE THE UNIT IN STANDBY CONDITION BY THROWING THE "DC ON" SWITCH TO ITS OFF POSITION AND THE LINE SWITCH CIRCUIT BREAKER TO ITS ON POSITION.

THE POLARIZED PLUG SUPPLIED WITH THE INSTRUMENT SHOULD BE WIRED WITH THE WIDE SILVER PLUG CONNECTED AS THE NEGATIVE LEAD.

INSERT THE POLARIZED PLUG INTO THE OUTLET MARKED "DC OUTPUT" AND CONNECT AN APPROPRIATE LOAD TO THE OUTPUT.

TURN ALL RANGE CONTROLS TO THE EXTREME LEFT AND SET THE RANGE SWITCH TO THE DESIRED CURRENT RANGE.

THROW THE "DC ON" SWITCH TO ITS ON POSITION AND ADJUST THE PROPER RANGE CONTROL TO THE DESIRED CURRENT READ ON THE METER.

EACH RANGE IS SEPERATELY FUSED. A METER LOAD OF APPROXIMATELY 200% WILL BLOW THE FUSE. ALL FUSES ARE ACCESSIBLE FROM THE FRONT PANEL.

THE LINE SWITCH-CIRCUIT BREAKER IS A 5 AMPERE MAGNETIC RELAY.

A VOLTAGE CONTROL IS AVAILABLE ON THE REAR PANEL. THIS CONTROL IS SET AT THE OPTIMUM REGULATION POINT WHICH CORRESPONDS TO AN OUTPUT VOLTAGE OF 270 VOLTS, DC MEASURED IN NO LOAD CONDITION ON THE 500 MA. RANGE.

THE MAXIMUM NO-LOAD VOLTAGES CORRESPONDING TO THE FOUR CURRENT RANGES ARE THE FOLLOWING:

500 MA. - 270 VOLTS

100 MA. - 270 VOLTS

25 MA. - 55 VOLTS

5 MA. - 25 VOLTS

DIMENSIONS:

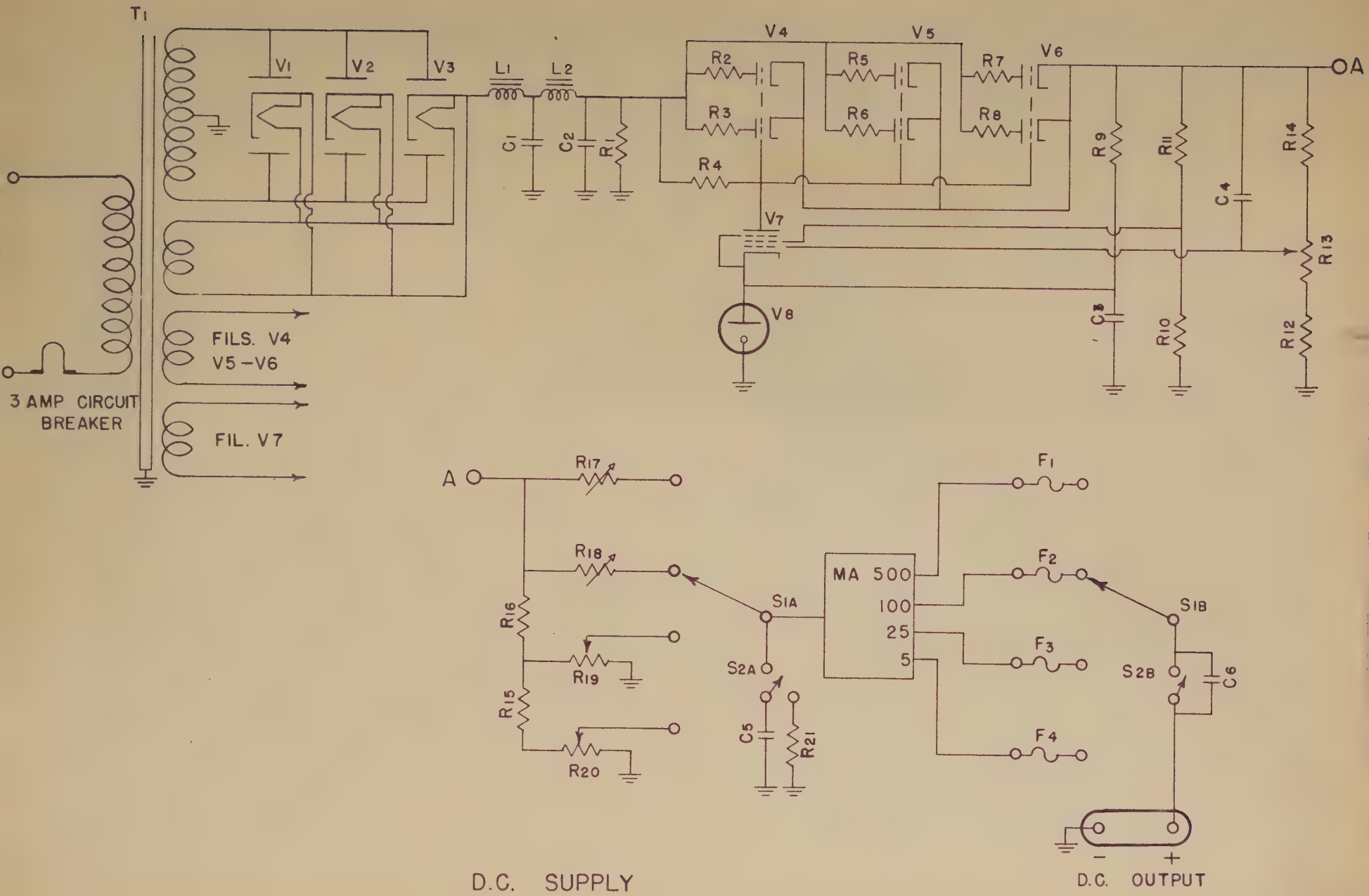
	W	D	H
Rack:	19" x	13 3/16" x	12 1/4"

Cabinet: 21½" x 15" x 14"

Weight:

Lbs.

Rack - 68"
Cabinet - 89"


T1
V1
V2
V3
L1
L2
C1
C2
R1
V4
V5
V6
R2
R3
R4
R5
R6
R7
R8
A
R9
R11
C4
R14
R13
V7
V8
C3
R10
R12
FILS. V4
V5 – V6
3 AMP CIRCUIT
BREAKER
FIL. V7
A
R17
R18
R16
R19
R15
R20
S1A
S2A
C5
R21
MA 500
100
25
5
F1
F2
F3
F4
S1B
S2B
C6
– +
D.C. OUTPUT

D.C. SUPPLY

PARTS LIST

RESISTORS

R-1	4K	160w	±5%
R-2	47 OHMS	2w	±10%
R-3	47 OHMS	2w	±10%
R-4	680K	2w	±10%
R-5	47 OHMS	2w	±10%
R-6	47 OHMS	2w	±10%
R-7	47 OHMS	2w	±10%
R-8	47 OHMS	2w	±10%
R-9	22K	2w	±10%
R-10	168K	1w	±10%
R-11	18K	2w	±10%
R-12	68K	2w	±10%
R-13	10K	POTENTIOMETER	
R-14	68K	2w	±10%
R-15	2K	5w	±10%
R-16	8K	20w	±10%
R-17	2700 OHMS	POTENTIOMETER	
R-18	10K	POTENTIOMETER	
R-19	5K	POTENTIOMETER	
R-20	2.5K	POTENTIOMETER	
R-21	47K	2w	±10%

CAPACITORS

C-1	10 MFD	ELECTROLYTIC	600 VOLTS
C-2	10 MFD	ELECTROLYTIC	600 VOLTS
C-3	.1 MFD	PAPER	400 VOLTS
C-4	.1 MFD	PAPER	400 VOLTS
C-5	8 MFD	ELECTROLYTIC	450 VOLTS
C-6	.1 MFD	PAPER	400 VOLTS

TRANSFORMERS

T-1	FREED NO. 17029 POWER TRANSFORMER

INDUCTORS

L-1	FILTER CHOKE	FREED NO. 15467
L-2	FILTER CHOKE	FREED NO. 15467

FUSES

F-1	6/10 AMP
F-2	2/10 AMP
F-3	1/16 AMP
F-4	1/100 AMP

SWITCHES

S-1A, S-1B	RANGE SWITCH
S-2A, S-2B	DC ON-OFF SWITCH

TABLE OF VOLTAGE READINGS

TUBE	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7	PIN 8
V1 5V4		HEATER		500 A.C.		500 A.C.		450
V2 5V4		HEATER		500A.C.		500A.C.		450
V3 5V4				500A.C.		500A.C.		450
V4 6AS7	175	430	275	175	430	275	HEATER	HEATER
V5 6AS7	175	430	275	175	430	275	HEATER	HEATER
V6 6AS7	175	430	275	175	430	275	HEATER	HEATER
V7 6AK5	100	150	HEATER	HEATER	175	250	100	
V8 0A2		0			150			

ALL D.C. VOLTAGES MEASURED TO GROUND WITH 20,000 OHM/VOLT METER
ALL A.C. VOLTAGES MEASURED TO GROUND WITH 1,000 OHM/VOLT METER

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